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TI CULTIVATION OF MESENCHYMAL CELLS DERIVED FROM THE SKIN AND HAIR FOLLICLES OF THE SHEEP THE INVOLVEMENT OF PEPTIDE FACTORS IN GROWTH REGULATION.

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AB Mesenchymal components of skin and vibrissa follicles of the sheep have been introduced into culture. Outgrowths of cells were obtained from explants of the dermal papilla, follicular capsule, dermal sheath and the reticular region of the dermis. Following trypsinization, the cells were successfully propagated as monolayers through several passages. As numbers increased, both the papilla and sheath cells displayed aggregative behaviour. Capsular and dermal fibroblasts did not aggregate but became aligned into polarized arrays, the cells appearing to exert tractional forces on each other and the surface of the culture dish. In general, cell proliferation was promoted by fetal bovine serum (FBS), epidermal growth factor (EGF) and fibroblast growth factor (FGF), although the extents of the responses varied amongst the different types. Dermal fibroblasts underwent the greatest increase in

numbers in the presence of FBS. The sheath and papilla cells, by contrast,

were more responsive to EGF than dermal fibroblasts, with capsular fibroblasts displaying an intermediate response. Intense EGF immunoreactivity was detected in Western immunoblots of freshly isolated capsular tissue. The presence of EGF-like activity in capsular extracts was confirmed by radioreceptor assay, suggesting a specific autocrine or paracrine function for the growth factor in the local follicular environment. Mitogenic responses to FGF were approximately equivalent in all cell types when compared with controls. The similarities in aggregative behaviour and proliferative responses displayed by the dermal sheath and papilla cells suggest that they may be members of a lineage which diverged from that giving rise to the other mesenchymal derivatives during early follicle development.